Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Cancelled) A method for calculating the reciprocal square root of a number, comprising the steps of:

forming a piecewise-linear estimate for the reciprocal square root of a number;

rounding said estimate to a lower precision;

computing the residual of said rounded estimate;

using a Taylor Expansion to compute the polynomial in said residual of said estimate to obtain the residual error; and

multiplying said rounded estimate by said residual error and adding the result to said rounded estimate.

2. (Cancelled) The method of claim 1, said estimate is rounded to one half the number of digits sought for the final result.

3. (Cancelled) The method of Claim 1, wherein said estimate is rounded to less than one half of the number of digits sought for the final result.

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4. (Currently Amended) ~~An apparatus~~ A system for calculating the reciprocal square root of a number, comprising:

a processor;

a memory storing code accessible by the processor to

~~an arrangement for forming~~ form a piecewise-linear estimate for the reciprocal square root of a number;

~~an arrangement for rounding~~ round said estimate to a lower precision;

~~an arrangement for computing~~ compute the residual of said rounded estimate;

~~an arrangement for using~~ use a Taylor Expansion to compute the polynomial in said residual of said estimate to obtain the residual error; and

~~an arrangement for multiplying~~ multiply said rounded estimate by said residual error and adding the result to said rounded estimate, and

whereby said system is capable of calculating a reciprocal square root of a number.

5. (Currently Amended) The ~~apparatus~~ system of Claim 4, wherein said estimate is rounded to one half the number of digits sought for the final result

6. (Currently Amended) The ~~apparatus~~ system of Claim 4, wherein the said estimate is rounded to less than one half the number of digits sought for the final result.

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7. (Cancelled) A program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform a method for calculating the reciprocal square root of a number, comprising the steps of:

forming a piecewise-linear estimate for the reciprocal square root of a number;

rounding said estimate to a lower precision;

computing the residual of said rounded estimate;

using a Taylor Expansion to compute the polynomial in said residual of said estimate to obtain the residual error; and

multiplying said rounded estimate by said residual error and adding the result to said rounded estimate.

8. (Cancelled) The program storage device of Claim 7, wherein said estimate is rounded to one half the number of digits sought for the final result.

9. (Cancelled) The program storage device of Claim 7, wherein said estimate is rounded to less than one half the number of digits sought for the final result.